



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Treado et al. :  
Examiner: Lauchman, Layla G.  
Serial No.: 10/773,077 :  
Group No.: 2877  
Filed: February 5, 2004 :  
Attorney Docket No.: 030687  
For: Near Infrared Chemical :  
Imaging Microscope :

---

**INFORMATION DISCLOSURE STATEMENT  
PURSUANT TO 37 C.F.R. §§ 1.56 ET SEQ.**

---

Mail Stop Petition  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In accordance with 37 C.F.R. § 1.97(c), the above-identified Applicants cite the following patents and publications, which may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 C.F.R. § 1.56. In compliance with 37 C.F.R. § 1.98(a), copies of the patents and publications set forth below and listed on the attached Form PTO/SB/08A-B (8 sheets) have been provided.

**EXPRESS MAIL CERTIFICATE (37 C.F.R. § 1.10)**

Express Mail Label No. EV554289743US

Date of Deposit October 5, 2005

I hereby certify that this paper, and the papers and/or fees referred to herein as transmitted, submitted or enclosed, are being deposited with the U.S. Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. § 1.10 on the date indicated above and is addressed to the Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Name Daniel H. Golub

Signature 

<b><u>Patent No.</u></b>	<b><u>Patentee</u></b>	<b><u>Issue Date</u></b>
5,194,912	Batchelder et al.	03-16-1993
5,377,003	Lewis et al.	12-27-1994
5,377,004	Owen et al.	12-27-1994
5,442,438	Batchelder et al.	08-15-1995
5,493,443	Simon et al.	02-20-1996
5,528,393	Sharp et al.	06-18-1996
5,623,342	Baldwin et al.	04-22-1997
5,689,333	Batchelder et al.	11-18-1997
5,710,626	O'Rourke et al.	01-20-1998
5,862,273	Pelletier	01-19-1999
5,901,261	Wach	05-04-1999
5,911,017	Wach et al.	06-08-1999
5,943,122	Holmes	08-24-1999
6,002,476	Treado	12-14-1999
6,088,100	Brenan et al.	07-11-2000
6,483,641	MacAulay	11-19-2002
6,571,117	Marbach	05-27-2003
6,300,618	Tanaami et al.	10-09-2001
5,381,236	Morgan	01-10-1995
6,274,871	Dukor et al.	08-14-2001
6,614,532	Power et al.	09-02-2003
5,645,550	Hohla	07-08-1997
6,530,882	Farkas et al.	03-11-2003
6,640,130	Freeman et al.	10-28-2003
6,181,414	Raz et al.	01-30-2001
5,910,816	Fontenot et al.	06-08-1999
6,392,752	Johnson	05-21-2002
5,394,499	Ono et al.	02-28-1995
5,866,430	Grow	02-02-1999
5,974,211	Slater	10-26-1999
6,006,001	Alfano et al.	12-21-1999
6,091,872	Katoot	07-18-2000
6,222,970	Wach et al.	04-24-2001
6,485,413	Boppart et al.	11-26-2002
6,697,665	Rava et al.	02-24-2004
5,626,134	Zuckerman	05-06-1997
6,052,187	Krishnan et al.	04-18-2000
6,069,690	Xu et al.	05-30-2000
6,175,750	Cook et al.	01-16-2001
6,404,497	Backman et al.	06-11-2002
5,668,664	Shishido	09-16-1997
3,806,257	Amos	04-23-1974
5,900,975	Sussman	05-04-1999
4,802,760	Inoue et al.	02-07-1989
2004/0004715	Tuschel et al.	01-08-2004

### **Foreign Patent Documents**

PCT/CA98/00092	Raz et al.	08-13-1998
WO95/11624	Feld et al.	05-1995
EP 0174778 B1	Mumford	11-30-1988

### **Other Documents**

SKINNER et al., "Remote Raman Microimaging Using An AOTF and a Spatially Coherent Microfiber Optical Probe," Applied Spectroscopy vol. 50, No. 8, (1996) pp. 1007- 1014.

I. LEWIS and P. GRIFFITHS, "Raman Spectrometry with Fiber-Optic Sampling," Applied Spectroscopy, vol. 50, No. 10, (1996) pp. 12A-29A.

TREADO et al., "Indium Antimonide (InSb) Focal Plane Array(FPA) Detection for Near-Infrared Imaging Microscopy," Applied Spectroscopy 48. (1994) p. 607.

SHUKLA et al., "A Raman Scattering From Ultraheavily-Iron Implanted and Laser-Annealed Silicon," Physical Review B. Vol. 34, No. 12, 15 December 1986 pp. 8950-8953.

DEWILTON et al., "A Raman Study of the Dopant Distribution in Submicron Pn Junctions in B<sup>+</sup> or BF<sub>2</sub><sup>+</sup> Ion Implanted Silicon," SPIE Vol. 623 Advanced Processing and Characterization of Semiconductors III, (1986) pp. 26-34.

KIRILOV et al., "Amorphous Phase Transformation During Rapid Thermal Annealing of Ion-Implanted Si," Mat'l Res. Soc. Symp. Proc., Vol. 52 (1986) pp. 131-138.

MIZOGUCHI et al., "Raman Image Study of Flash-Lamp Annealing of Ion-Implanted Silicon," Journal of Applied Physics 77 (7) 1 April 1995 pp. 3388-3392.

OTHONOS et al., "Raman Spectroscopy and Spreading Resistance Analysis of Phosphorous Implanted and Annealed Silicon," Journal of Applied Physics 75 (12) 06/94 pp. 8032-8038.

OTHONOS et al., "Multi-Wavelength Raman Probing of Phosphorus Implanted Silicon Wafers," Nucl. Instr. and Meth. in Phys. Rev. B., 117 (1996) pp. 367-374.

CHRISTOFIDES et al., "Reconstruction Mechanisms in Ion Implanted and Annealed Silicon Wafers," Defect and Diffusion Forum, Vols. 117-118 (1985) pp. 45-64.

ISHIOKA et al., "Reduction in Raman Intensity of Si (1 1 1) Due to Defect Formation During Ion Irradiation," Solid State Communications, Vol. 96, No. 6 (1995) pp. 387-390.

DEY et al., "Raman Scattering Characterization of Si(100) Implanted with Mega-Electron-Volt Sb," Journal of Applied Physics 87(3) 1 February 2000, pp. 1110-1116.

JAIN et al., "Raman Scattering From Ion-Implanted Silicon," Physical Review B. Vol. 32, No. 10, 15 November 1985, pp. 6688-6691.

DEWILTON et al., "Raman Spectroscopy For NonDestructive Depth Profile Studies Of Ion Implantation In Silicon," J. Electrochem. Soc.: Solid State Science And Technology, May 1986, pp. 988-993.

ZHANG et al., "Details of Damage Profile in Self-Ion-Implanted Silicon," vol. 25 Journal of Raman Spectroscopy, (1994) pp. 515-520.

GORELICK, "Raman and Non-Linear Light Scattering From Undersurface Layers Of Ion Implanted Silicon Crystals," Materials Science Forum, Vol. 173-174 (1995) pp. 237-242.

MORRIS, HOYT, MILLER and TREADO., "Liquid Crystal Tunable Filter Raman Chemical Imaging," Applied Spectroscopy, No. 50, No. 6, June 1996 pp. 805-811.

NAKASHIMA et al., "Raman Microprobe Study of Recrystallization in Ion-Implanted and Laser-Annealed Polycrystalline Silicon," Journal of Applied Physics 54(5) 05/83, pp. 2611-2617.

PATRICK J. TREADO, "Chemical Imaging Reveals More Than The Microscope," Laser Focus World, October, 1995 pp. 1-7.

MORRIS, "Utrasensitive Raman and Fluorescence Imaging Using Liquid Crystal Tunable Filters," SPIE vol. 2385, (1995) pp. 81-87.

ROBERT D. GUENTHER, "Modern Optics, Polarization By Birefringence," John Wiley & Son, Inc. (1990) pp. 529-534.

GERALD C. HOLST, "Electro-Optical Imaging System Performance" SPIE Optical Engineering Press, (1995) pp. 218-219, 238-239, 248-257, 266-269.

JEFF HECHT, "Imaging and Illuminating Fiber Optics," Chapter 28, (3rd ed. 1999) pp. 567-581.

TREADO et al., "Infrared Raman Spectroscopic Imaging," (Marcell Decker, 1992) pp. 71-108.

TREADO et al., "A Thousand Points Of Light: The Hadamard Transform In Chemical Analysis And Instrumentation", Analytical Chemistry, Vol. 61, No. 11, June 1, 1989 pp. 723-734.

TREADO et al., "High-Fidelity Raman Imaging Spectrometry: A Rapid Method Using An Acousto-Optic Tunable Filter", Applied Spectroscopy, Vol. 46, No. 8 (1992) pp. 1211-1216.

TREADO et al., "Near-Infrared Acousto-Optic Filtered Spectroscopic Microscopy: A Solid-State Approach To Chemical Imaging," Applied Spectroscopy, Vol. 46, No. 4 (1992) pp. 553-559.

MORRIS et al., "Imaging Spectrometers for Fluorescence and Raman Microscopy: Acousto-Optic and Liquid Crystal Tunable Filter," Applied Spectroscopy, Vol. 48, No. 7, (1994) pp. 857-860.

TURNER et al., "LCTF Raman Chemical Imaging in the Near-Infrared," SPIE Vol. 3061 (1997) pp. 280-283.

MILLER et al., "Multispectral Imaging with a Liquid Crystal Tunable Filter," SPIE Vol. 2345, (1995) pp. 354-365.

"RAVEN Raman Imaging Fiberscope – A Tool for Insitu Material Analysis," ChemIncon, Inc., undated.

TREADO et al., "Engineering Study of the Feasibility of Incorporating a Raman Notch Filter into the Higher Temperature (HT) Fiberscope," July 29, 1997.

TREADO et al., "Incorporation of a Band Pass Filter into a High Temperature Raman Illumination Fiberscope," February 15, 1999.

TREADO et al., "Incorporation of a Notch Filter into a High Temperature Raman Collection Fiberscope," July 20, 1998.

GONZALEZ et al., "Digital Image Processing," Addison-Wesley Publishing Co. (1992) pp. 21-79.

PETER J. MILLER, National Science Foundation Small Business Innovation Research Program, "High Definition Raman Imaging Microscope," June, 1994.

PETER J. MILLER, Small Business Innovation Research (SBIR) Phase I, "SBIR Phase I: High Definition Raman Imaging Microscope," September 13, 1996.

PETER J. MILLER, National Science Foundation SBIR Phase II Proposal, "High-Definition Raman Imaging Microscope," October, 1996.

PATRICK J. TREADO, Letter to Peter V. Foukal, Ph.D., October 24, 1996.

PATRICK J. TREADO, Letter to Peter Miller, October 28, 1996.

The following publication is being submitted with confidential financial information redacted from the text as indicated. If the Examiner is interested in reviewing any of the redacted information, he/she is invited to contact the undersigned.

PATRICK J. TREADO, "A Miniaturized Raman Fiberscope for Remote Chemical Imaging," Proposal Submitted to the Ben Franklin Technology Center of Western Pennsylvania, March 21, 1997.

The following publication is being submitted without pages 11 and 12. The Applicants have undertaken a diligent search of their files but have not found a copy of this publication containing pages 11 and 12. It is also submitted with confidential financial information redacted from the text as indicated. If the Examiner is interested in reviewing any of the redacted information, he/she is invited to contact the undersigned.

PATRICK J. TREADO, "A Raman Endoscope for Breast Cancer Diagnosis," Proposal submitted to the Ben Franklin Technology Center of western Pennsylvania, April 8, 1998.

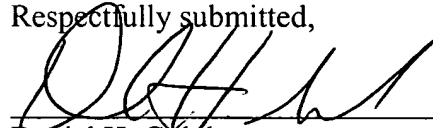
Applicants respectfully request that these items be considered by the Examiner, and that the Examiner acknowledge consideration of these references by initialing and returning copies of the enclosed Form PTO/SB/08A-B with the next official action.

While this Information Disclosure Statement may be "material" pursuant to 37 C.F.R. § 1.56, it is not intended to constitute an admission that any patent, publication or other information referred to herein is "prior art" for this invention or otherwise material to the patentability of this invention as defined in 37 C.F.R. § 1.56.

In accordance with 37 C.F.R. § 1.97(g), the filing of this Information Disclosure Statement shall not be construed as a representation that a search has been made or that no other material information as defined in 37 C.F.R. § 1.56(b) exists.

The Commissioner is hereby authorized to charge any fees that may be due in connection with this submission, including the fee due required by § 1.197(c) under § 1.17(p), to Deposit Account No. **50-0310**. A duplicate copy of this page is enclosed.

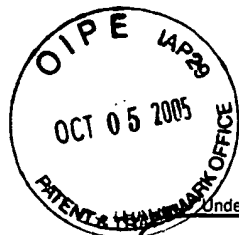
Respectfully submitted,

A handwritten signature in black ink, appearing to read 'D. Golub', is written over a horizontal line.

Daniel H. Golub  
Reg. No. 33,701  
Sharon B. McCullen  
Reg. No. 54,303  
Attorneys for Applicant

MORGAN, LEWIS & BOCKIUS LLP  
1701 Market Street  
Philadelphia, PA 19103-2921  
215.963.5055

Dated: October 5, 2005

EXPRESS MAIL  
LABEL NO.

EV55424974345

PTO/SB/08A (08-03)

Approved for use through 07/31/2006. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet

1

of

1

**Complete if Known**

Application Number	1017731077
Filing Date	February 5, 2004
First Named Inventor	Treado
Art Unit	2877
Examiner Name	Lachman, Hayla G.
Attorney Docket Number	030687

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	A	US- 5,194,912	03-16-1993	Batchelder et al.	
	B	US- 5,377,003	12-27-1994	Lewis et al.	
	C	US- 5,377,004	12-27-94	Owen et al.	
	D	US- 5,442,438	08-15-1995	Batchelder et al.	
	E	US- 5,493,443	02-20-1996	Simon et al.	
	F	US- 5,528,393	06-18-1996	Sharp et al.	
	G	US- 5,623,342	04-22-1997	Baldwin et al.	
	H	US- 5,689,333	11-18-1997	Batchelder et al.	
	I	US- 5,710,626	01-20-1998	O'Rourke et al.	
	J	US- 5,862,273	01-19-1999	Pelletier	
	K	US- 5,901,261	05-04-1999	Wach	
	L	US- 5,911,017	06-08-1999	Wach et al.	
	M	US- 5,943,122	08-24-1999	Holmes	
	N	US- 6,002,476	12-14-1999	Treado	
	O	US- 6,088,100	07-11-2000	Brenan et al.	
	P	US- 6,483,641	11-19-2002	MacAulay	
	Q	US- 6,571,117	05-27-2003	Marbach	
	R	US- 6,300,618	10-09-2001	Tanaami et al.	
	S	US- 5,381,236	01-10-1995	Morgan	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				
	T	PCT/CA98/00092	08-13-1998	Raz et al.		
	U	WO95/11624	05-1995	Feld et al.		
	V	EP 0174778 B1	11-30-88	Mumford		

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 12 of 0**Complete if Known**

Application Number	101773,077
Filing Date	Feb 5, 2004
First Named Inventor	Treado
Art Unit	2877
Examiner Name	lauchman, kayla G.
Attorney Docket Number	030687

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	W	US- 6,274,871	08-14-2001	Dukor et al.	
	X	US- 6,614,532	09-02-2003	Power et al.	
	Y	US- 5,645,550	07-08-1997	Hohla	
	Z	US- 6,530,882	03-11-2003	Farkas et al.	
	AA	US- 6,640,130	10-28-2003	Freeman et al.	
	BB	US- 6,181,414	01-30-2001	Raz et al.	
	CC	US- 5,910,816	06-08-1999	Fontenot et al.	
	DD	US- 6,392,752	05-21-2002	Johnson	
	EE	US- 5,394,499	02-28-1995	Ono et al.	
	FF	US- 5,866,430	02-02-1999	Grow	
	GG	US- 5,974,211	10-26-1999	Slater	
	HH	US- 6,006,001	12-21-1999	Alfano et al.	
	II	US- 6,091,872	07-18-2000	Katoot	
	JJ	US- 6,222,970	04-24-2001	Wach et al.	
	KK	US- 6,485,413	11-26-2002	Boppart et al.	
	LL	US- 6,697,665	02-24-2004	Rava et al.	
	MM	US- 5,626,134	05-06-1997	Zuckerman	
	NN	US- 6,052,187	04-18-2000	Krishnan et al.	
	OO	US- 6,069,690	05-30-2000	Xu et al.	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

*(Use as many sheets as necessary)*

Sheet 3

of

4

**Complete if Known**

Application Number	101773,077
--------------------	------------

Filing Date	Feb 5, 2004
-------------	-------------

First Named Inventor	Treado
----------------------	--------

Art Unit	2877
----------	------

Examiner Name	Lauchman, Lavla G.
---------------	--------------------

Attorney Docket Number	030687
------------------------	--------

## U. S. PATENT DOCUMENTS

[illegible]

## FOREIGN PATENT DOCUMENTS

[illegible]

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

<sup>1</sup>EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>2</sup>Applicant's unique citation designation number (optional). <sup>3</sup>See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>4</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>5</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>6</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>7</sup>Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

**If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.**

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)		<b>Complete if Known</b>	
		Application Number	: 10/773,077
		Filing Date	February 5, 2004
		First Named Inventor	Treado
		Art Unit	2877
		Examiner Name	Lauchman, Hayla G.
Sheet 4	of 8	Attorney Docket Number 030687	

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	WW	SKINNER et al. "Remote Raman Microimaging Using An AOTF and a Spatially Coherent Microfiber Optical Probe," Applied Spectroscopy, Vol. 50 No. 8, (1996) pp.1007- 1014 .	
	XX	I. LEWIS AND P. GRIFFITHS, "Raman Spectrometry with Fiber-Optic Sampling," Applied Spectroscopy, Vol. 50, No. 10, (1996) pp. 12A-29A .	
	YY	TREADO et al., "Indium Antimonide (InSb) Focal Plane Array(FPA) Detection for Near-Infrared Imaging Microscopy," Applied Spectroscopy 48. (1994) p. 607.	
	ZZ	SHUKLA et al., "A Raman Scattering From Ultraheavily-Iron Implanted and Laser-Annealed Silicon," Physical Review B. Vol. 34, No. 12, 15 December 1986, pp. 8950-8953.	
	A'	DEWILTON et al., "A Raman Study of the Dopant Distribution in Submicron Pn Junctions in B+ or BF2+ Ion Implanted Silicon," SPIE Vol. 623 Advanced Processing and	
		Characterization of Semiconductors III (1986) pp. 26-34.	
	B'	KIRILOV et al., "Amorphous Phase Transformation During Rapid Thermal Annealing of Ion-Implanted Si," Mat'l Res. Soc. Symp. Proc., Vol. 52 (1986) pp. 131-138.	
	C'	MIZOGUCHI et al., "Raman Image Study of Flash-Lamp Annealing of Ion-Implanted Silicon," Journal of Applied Physics 77 (7) 1 April 1995, pp. 3388-3392.	
	D'	OTHONOS et al., "Raman Spectroscopy and Spreading Resistance Analysis of Phosphorous Implanted and Annealed Silicon," Journal of Applied Physics, 75 (12) 06/94, pp. 8032-8038.	
	E'	OTHONOS et al., "Multi-Wavelength Raman Probing of Phosphorus Implanted Silicon Wafers," Nucl. Instr. and Meth. in Phys. Rev. B., 117 (1996) pp. 367-374.	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	1017731077
Filing Date	February 5, 2004
First Named Inventor	Treado
Art Unit	2877
Examiner Name	Lauchman, Layla G.
Attorney Docket Number	030687

Sheet

5

of

8

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	F'	CHRISTOFIDES et al., "Reconstruction Mechanisms in Ion Implanted and Annealed Silicon Wafers," Defect and Diffusion Forum, Vols. 117-118 (1985) pp. 45-64	
	G'	ISHIOKA et al., "Reduction in Raman Intensity of Si (1 1 1) Due to Defect Formation During Ion Irradiation," Solid State Communications, Vol. 96, No. 6 (1995) pp. 387-390 .	
	H'	DEY et al., "Raman Scattering Characterization of Si(100) Implanted With Mega-Electron-Volt Sb", Journal of Applied Physics 87(3) 1 February 2000, pp. 1110-1116.	
	I'	JAIN et al., "Raman Scattering From Ion-Implanted Silicon," Physical Review B., Vol. 32, No. 10, 15 November 1985, pp. 6688-6691.	
	J'	DEWILTON et al., "Raman Spectroscopy For NonDestructive Depth Profile Studies Of Ion Implantation In Silicon", J. Electrochem. Soc.: Solid State Science And Technology, May 1986, pp. 988-993.	
	K'	ZHANG et al., "Details of Damage Profile in Self-Ion-Implanted Silicon," Vol. 25 Journal of Raman Spectroscopy, (1994) pp. 515-520 .	
	L'	GORELICK, "Raman and Non-Linear Light Scattering From Undersurface Layers Of Ion Implanted Silicon Crystals," Materials Science Forum, Vol. 173-174 (1995) pp. 237-242.	
	M'	MORRIS, HOYT, MILLER and TREADO, "Liquid Crystal Tunable Filter Raman Chemical Imaging," Applied Spectroscopy, No. 50, No. 6, June 1996 pp. 805-811.	

Examiner Signature	Date Considered
--------------------	-----------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/773,077
Filing Date	February 5, 2004
First Named Inventor	Treado
Art Unit	2877
Examiner Name	Lauchman, Layla G.
Attorney Docket Number	030687

Sheet

6

of

8

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	N'	NAKASHIMA et al., "Raman Microprobe Study of Recrystallization in Ion-Implanted and Laser-Annealed Polycrystalline Silicon," Journal of Applied Physics 54(5) 05/83 pp. 2611-2617.	
	O'	PATRICK J. TREADO, "Chemical Imaging Reveals More Than The Microscope," Laser Focus World, October, (1995) pp. 1-7.	
	P'	MORRIS, "Utrasensitive Raman and Fluorescence Imaging Using Liquid Crystal Tunable Filters," SPIE Vol. 2385, (1995) pp. 81-87.	
	Q'	ROBERT D. GUENTHER, "Modern Optics, Polarization By BiRefringence," (John Wiley & Son 1990) pp. 529-534.	
	R'	GERALD C. HOLST, "Electro-Optical Imaging System Performance," SPIE Optical Engineering Press, pp. 218-219, 238-239, 248-257, 266-269.	
	S'	JEFF HECHT, "Imaging and Illuminating Fiber Optics," Chapter 28, (3rd ed. 1999) pp. 567-581.	
	T'	TREADO et al., "Infrared Raman Spectroscopic Imaging," (Marcell Decker, 1992) pp. 71-108.	
	W'	TREADO et al., "A Thousand Points Of Light: The Hadamard Transform In Chemical Analysis And Instrumentation," Analytical Chemistry, Vol. 61, No. 11, June 1, 1989, pp. 723-734.	

Examiner Signature	Date Considered
--------------------	-----------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/773,077
Filing Date	February 5, 2004
First Named Inventor	Treado
Art Unit	2877
Examiner Name	lauchman, kayla G.
Attorney Docket Number	1030687

Sheet

7

of

8

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	V'	TREADO et al., "High-Fidelity Raman Imaging Spectrometry: A Rapid Method Using An Acousto-Optic Tunable Filter", Applied Spectroscopy, Vol. 46, No. 8, (1992) pp. 1211-1216.	
	W'	TREADO et al., "Near-Infrared Acousto-Optic Filtered Spectroscopic Microscopy: A Solid-State Approach To Chemical Imaging", Applied Spectroscopy, Vol. 46, No. 4, (1992)	
		pp. 553-559.	
	X'	MORRIS et al., "Imaging Spectrometers for Fluorescence and Raman Microscopy: Acousto-Optic and Liquid Crystal Tunable Filter," Applied	
		Spectroscopy, Vol. 48, No. 7 (1994) pp. 857-866.	
	Y'	TURNER et al., "LCTF Raman Chemical Imaging in the Near-Infrared," SPIE Vol. 3061 (1997) pp. 280-283.	
	Z'	"RAVEN Raman Imaging Fiberscope - A Tool for Insitu Material Analysis," Ben Franklin Technology Center of Western Pennsylvania, date unknown.	
	AA'	TREADO et al., "Engineering Study of the Feasibility of Incorporating a Raman Notch Filter into the Higher Temperature (HT) Fiberscope," July 29, 1997.	
	BB'	TREADO et al., "Incorporation of a Band Pass Filter into a High Temperature Raman Illumination Fiberscope," February 15, 1999.	
	CC'	TREADO et al., "Incorporation of a Notch Filter into A High Temperature Raman Collection Fiberscope," July 20, 1998.	

Examiner Signature	Date Considered
--------------------	-----------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)	<b>Application Number</b>	10/773,077
	<b>Filing Date</b>	February 5, 2004
	<b>First Named Inventor</b>	Treado
	<b>Art Unit</b>	2877
	<b>Examiner Name</b>	Lauchman, Layla G.
<b>Sheet</b> 8 <b>of</b> 8	<b>Attorney Docket Number</b>	1030687

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	DDI	MILLER, et al., "Multispectral Imaging with a Liquid Crystal Tunable Filter," SPIE, Vol. 2345 (1995), pp. 354-365.	
	EEI	MILLER, Peter, "High Definition Raman Imaging Microscope," National Science Foundation Small Business Innovation Research Program, June, 1994.	
	FFI	MILLER Peter J., "SBIR Phase I: High Definition Raman Imaging Microscope," Small Business Innovation Research (SBIR) Phase I, September 13, 2005.	
	GGI	MILLER, Peter J., "High Definition Raman Imaging Microscope," National Science Foundation SBIR Phase II Proposal, October, 1996.	
	HHI	TREADO, Patrick J., Letter to Peter V. Foukal, Ph.D., October 24, 1996.	
	II	TREADO, Patrick J., Letter to Peter Miller, October 28, 1996.	
	JJI	GONZALEZ et al., "Digital Image Processing," Addison-Wesley Publishing Co. (1992) pp. 21-79.	
	KKI	PATRICK J. TREADO, "A Miniaturized Raman Fiberscope for Remote Chemical Imaging," Proposal Submitted to the Ben Franklin Technology Center of Western Pennsylvania, March 21, 1	
	LLI	PATRICK J. TREADO, "A Raman Endoscope for Breast Cancer Diagnosis," Proposal submitted to the Ben Franklin Technology Center of Western Pennsylvania, April 8, 1998.	

<b>Examiner Signature</b>		<b>Date Considered</b>	
---------------------------	--	------------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.